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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A structure, comprising:

a first shaft member, the first shaft member being formed out of a first material, the first shaft member having an outer periphery formed with an axial groove and a circumferential groove, each of said grooves having a cross section having opposed faces substantially parallel to each other, and wherein the axial groove is deeper in depth than the circumferential groove;

a second shaft member fixed to the first shaft member via a torsion bar;

a surrounded member formed out of a magnetic material, the surrounded member being fixed to the second shaft member;

a cylindrical member fitted to the outer periphery of the first shaft member, the cylindrical member having a portion facing the surrounded member, the cylindrical member being formed out of a second material, the second material being greater in linear expansion coefficient than the first material, the second material being conductive non-magnetic metallic material;

a torque detection coil able to detect a torque acting between the first shaft member and the second shaft member by detecting a change in superimposition of the surrounded member and the portion of the cylindrical member in accordance with an impedance change; and

a caulked portion provided to the cylindrical member partly at an intersection of the axial groove and the circumferential groove,

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the caulked portion having a continuous and deformed inner surface in press contact with the opposed faces of the axial groove and the circumferential groove at the intersection, and the caulked portion at the intersection having a caulked protrusion portion extending beyond a depth of said circumferential groove, and engaged exclusively with the deeper said axial groove.

~~wherein the axial groove is greater in depth than the circumferential groove.~~

2.-3. (Cancelled)

4. (Previously Presented) The structure as claimed in claim 1, wherein a circumferential width of the caulked portion is greater than a circumferential width between the opposed faces of the axial groove at the intersection.

5. (Original) The structure as claimed in claim 4, wherein the caulked portion comprises a first caulked part corresponding to the circumferential groove and a second caulked part corresponding to the axial groove, the second caulked part being arranged substantially in a middle of the first caulked part.

6. (Original) The structure as claimed in claim 1, wherein the axial groove comprises a plurality of groove portions in a circumferential direction.

7. (Original) The structure as claimed in claim 6, wherein the plurality of groove portions of the axial groove are three in number.

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8. (Original) The structure as claimed in claim 1, wherein the cross section of the axial groove and the circumferential groove is rectangular.

9. (Previously Presented) The structure as claimed in claim 1, wherein the cylindrical member is apart from the shaft member except the caulked portion.

10. (Original) The structure as claimed in claim 1, wherein the axial groove has an opening edge formed at an acute angle.

11. (Previously Presented) The structure as claimed in claim 1, further comprising an input shaft and an output shaft, wherein the first shaft member comprises one of the input shaft and the output shaft, wherein the second shaft member comprises an other one of the input shaft and the output shaft, the input shaft and the output shaft arranged relatively rotatably with respect to each other, the input shaft and the output shaft being used for a torque sensor of an electric power steering apparatus.

12.-20. (Cancelled)

21. (Currently Amended) A structure, comprising:

a first shaft member, the first shaft member being formed out of a first material, the first shaft member having an outer periphery formed with at least one axial groove, the at least one axial groove having a cross section having opposed faces substantially parallel to each other;

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a second shaft member fixed to the first shaft member via a torsion bar;
a surrounded member formed out of a magnetic material, the surrounded member being fixed to the second shaft member;
a cylindrical member provided to the outer periphery of the first shaft member, the cylindrical member having a portion facing the surrounded member, the cylindrical member being formed out of a second material, the second material being greater in linear expansion coefficient than the first material, the second material being a conductive non-magnetic metallic material;
a torque detection coil able to detect a torque acting between the first shaft member and the second shaft member by detecting a change in superimposition of the surrounded member and the portion of the cylindrical member in accordance with an impedance change; and
a caulked portion provided to the cylindrical member at a position corresponding to the at least one axial groove of the shaft member, the caulked portion having a deformed inner surface in press contact with the opposed faces of the at least one axial groove;
wherein the cylindrical member is spaced apart from the shaft member by a clearance, the clearance extending axially from one axial end of the cylindrical member through a portion except at the caulked portion to another axial end of the cylindrical member.

22. (Previously Presented) The structure as claimed in claim 10, wherein the axial groove has the opening edge formed at the acute angle at the intersection.

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23. (Previously Presented) The structure as claimed in claim 21, wherein the clearance is sufficient to loosely fit an inner periphery side of the cylinder over the shaft outer surface.

24. (Currently Amended) The structure as claimed in claim 23, wherein the clearance is established at ordinary temperature so as to allow the clearance to circumferentially exist between both circumferential ends of the caulked portion of the cylindrical member.

25. (Previously Presented) The structure as claimed in claim 1, wherein the caulked portion is provided to the cylindrical member, only at the intersection of the axial groove and the circumferential groove and a part of the circumferential groove adjacent to the intersection, to couple the cylindrical member with the first shaft member.

26. (Previously Presented) The structure as claimed in claim 21, wherein the first shaft member has the outer periphery formed with a plurality of axial grooves, and the caulked portion is provided at each of the plurality of axial grooves, respectively, and

the clearance exists between the cylindrical member and the shaft portion in between the respective caulked portions.

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27. (New) The structure as claimed in claim 1, wherein

the first shaft member has the outer periphery formed with a plurality of axial grooves and one circumferential groove, the first shaft member having a plurality of intersections of the one circumferential groove and the plurality of axial grooves, and

the cylindrical member has a plurality of caulked portions along the one circumferential groove, each of the plurality of caulked portions being formed about the corresponding intersection of the plurality of intersections.

28. (New) The structure as claimed in claim 1, wherein

the first shaft member has the outer periphery formed with a plurality of axial grooves and one circumferential groove, the first shaft member having a plurality of intersections of the one circumferential groove and the plurality of axial grooves, and

the cylindrical member is partly spaced apart from the shaft member by a clearance existing circumferentially between the plurality of intersections.

29. (New) The structure as claimed in claim 21, comprising:

the first shaft member having the outer periphery formed with the axial groove and a circumferential groove, each of said grooves having a cross section having opposed faces substantially parallel to each other, and wherein the axial groove is deeper in depth than the circumferential groove;

the caulked portion provided to the cylindrical member partly at an intersection of the axial groove and the circumferential groove,

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the caulked portion at the intersection having a caulked protrusion portion extending beyond a depth of said circumferential groove, and engaged exclusively with the deeper said axial groove.

30. (New) A structure, comprising:

a first shaft member, the first shaft member being formed out of a first material, the first shaft member having an outer periphery formed with an axial groove and a circumferential groove, each of said grooves having a cross section having opposed faces substantially parallel to each other, and wherein one of the axial groove and circumferential groove is deeper in depth than the other one of the axial groove and circumferential groove;

a second shaft member fixed to the first shaft member via a torsion bar;

a surrounded member formed out of a magnetic material, the surrounded member being fixed to the second shaft member;

a cylindrical member fitted to the outer periphery of the first shaft member, the cylindrical member having a portion facing the surrounded member, the cylindrical member being formed out of a second material, the second material being greater in linear expansion coefficient than the first material, the second material being conductive non-magnetic metallic material;

a torque detection coil able to detect a torque acting between the first shaft member and the second shaft member by detecting a change in superimposition of the surrounded member and the portion of the cylindrical member in accordance with an impedance change; and

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a caulked portion provided to the cylindrical member partly at an intersection of the axial groove and the circumferential groove,

the caulked portion at the intersection having a caulked protrusion portion extending beyond a depth of said other one of the axial groove and circumferential groove, and engaged exclusively with the deeper said one of the axial groove and circumferential groove.